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SYSTEM AND METHOD FOR RENDERING DIGITAL  
IMAGES HAVING SURFACE REFLECTANCE PROPERTIES

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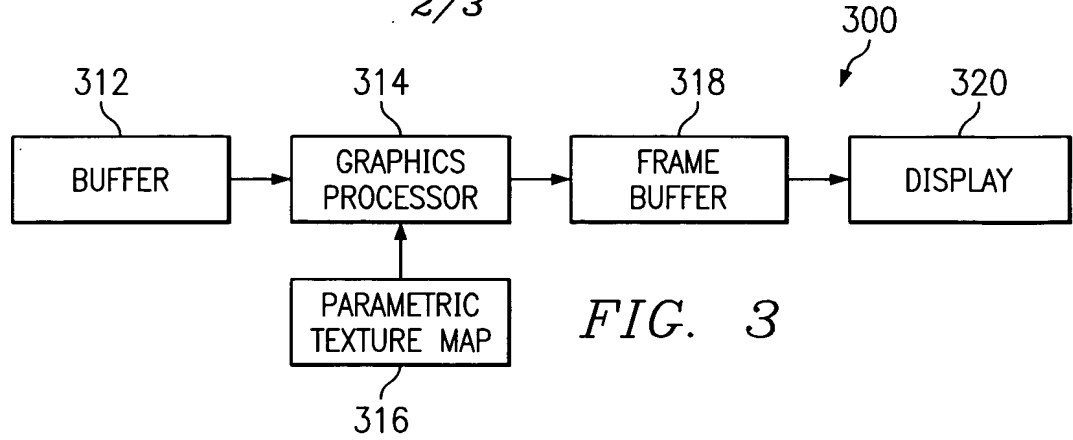


FIG. 3

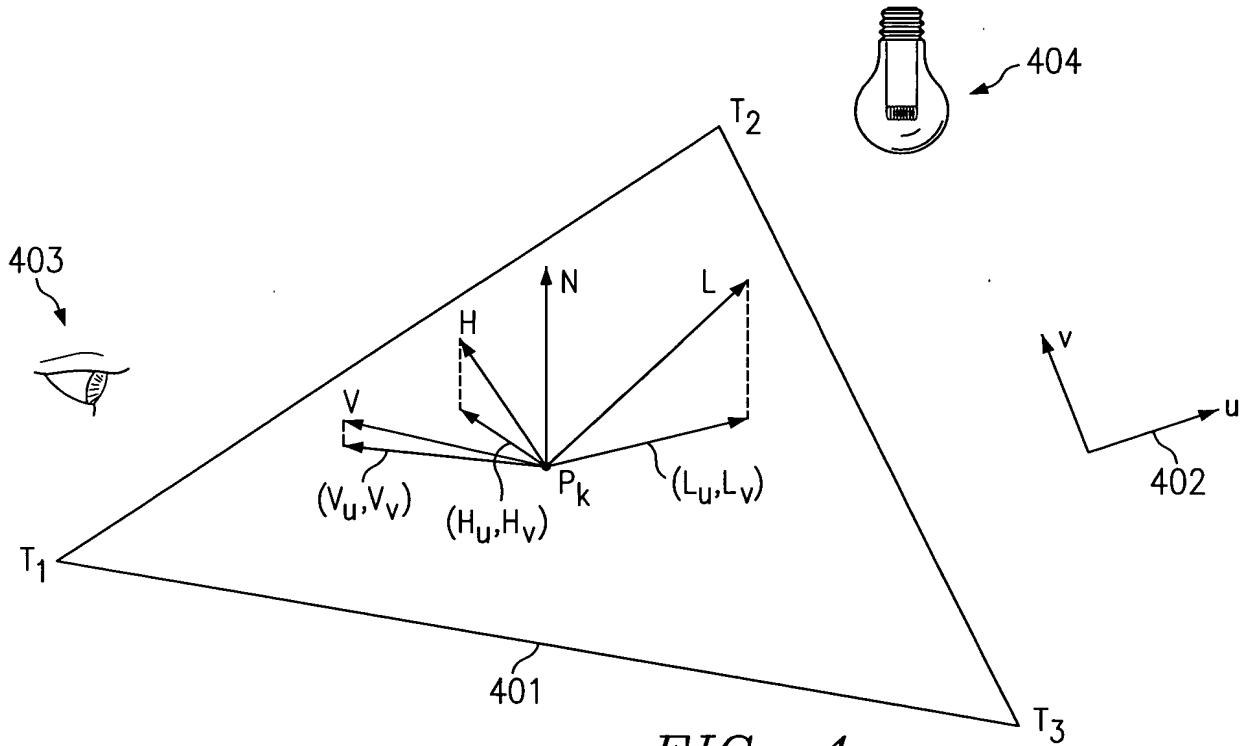


FIG. 4

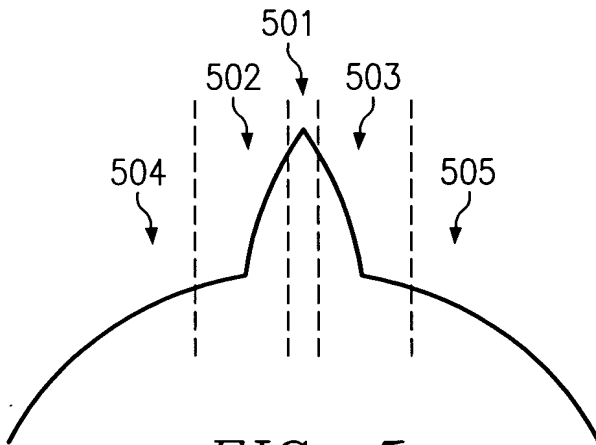


FIG. 5

FIG. 7

801 START

702 FOR EACH TRIANGLE

703 FOR EACH VERTEX

704 PARAMETERIZE THE LIGHT AND  
VIEW VECTORS AS HALF ANGLE  
AND DIFFERENCE VECTORS,  
WHEREIN:  $H=|L+V|$  AND  $D=L-H$

705 CALCULATE TWO COMPONENT  
REPRESENTATIONS OF THE HALF  
ANGLE AND DIFFERENCE  
VECTORS:  $(H_u, H_v)$  AND  $(D_u, D_v)$

MORE  
VERTICES?

706 NO

707 FOR EACH PIXEL

708 INTERPOLATE  $(H_u, H_v)$  AND  
 $(D_u, D_v)$  ACROSS THE PTM  
TEXTURE COORDINATES TO  
OBTAIN THE SIX BIQUADRIC  
COEFFICIENTS: A, B, C, D, E, AND F

709 EVALUATE THE BIQUADRIC  
POLYNOMIAL USING  $(D_u, D_v)$  AS  
THE INDEPENDENT VARIABLES:  
 $A \cdot D_u^2 + B \cdot D_v^2 + C \cdot D_u D_v + D \cdot D_u + E \cdot D_v + F$

MORE  
PIXELS?

710 NO

MORE  
TRIANGLES?

711 NO

712 END

FIG. 6

601 START

602 FOR EACH TEXEL  
(HALF ANGLE  
VECTOR)

603 SAMPLE BRDF DATA  
OVER THE RANGE OF  
POSSIBLE  
DIFFERENCE  
VECTORS:  $(D_u, D_v)$

604 DETERMINE  
BIQUADRIC  
COEFFICIENTS FOR  
THE CURRENT TEXEL  
BY PERFORMING A  
LEAST SQUARES FIT  
USING  $(D_u, D_v)$   
SAMPLED DATA

MORE  
TEXELS  
?

605 NO

606 END